This study proposes a method for recognition of Thai printed characters by the syntactic method. The recognition method combines techniques of syntactic tree structure analysis and global feature analysis. After vectorization, the former method is used for rough classification, including vector to postfix tree of primitive transformation and the distance between tree of input character and template character that the head of character addresses in the same zone as input character. Next, the latter method is used for fine classification. Dominant characteristics of character are analyzed to increase accuracy of recognition. If a character is not recognized, the vector is enhanced by using the joint of two closely broken lines or the cutting of shortest line of input character. Then the recognition procedure is processed again until result of recognition is accepted otherwise it is rejected. The recognition rate is about 97% of 966 test characters, 101 characters are used for templates, and average recognition time is 1.09 second per character on the IBM-PC 486sx, 33 MHz clock speed machine.